Amendments to the Claims

SENT BY: WILSON & HAM;

1

Please cancel claim 12, and amend claims 1, 9 and 17 as shown in the following list of claims. This listing of claims will replace all prior versions, and listings, of claims in the application.

- 1. (currently amended) An optical device comprising:
- 2 an optics system comprising an input to receive optical signals in
- an incoming direction and an output to selectively transmit a selected optical 3
- signal of said optical signals in an outgoing direction, said optics system being 4
- configured to selectively rotate one of the polarization components of each of said 5
- optical signals in said incoming direction to a first polarization state; б
- 7 an optical unit optically coupled to said optics system, said optical
- unit being configured to laterally displace and rotate said polarization components 8
- 9 of said selected optical signal such that said polarization components of said
- selected optical signal in said outgoing direction are in said first polarization state, 10
- said optical unit comprising one of a Wollaston prism and a polarizing 11
- 12 beamsplitter, and a wave plate positioned such that said polarization components
- of said selected optical signal in said outgoing direction are selectively transmitted 13
- through said wave plate; and 14
- a diffraction grating positioned between said optics system and said 15
- optical unit to diffract said polarization components of said selected optical signal 16
- in said incoming and outgoing directions, said polarization components of said 17
- selected optical signal being in said first polarization state in both said incoming 18
- and outgoing directions at said diffraction grating. 19
- 2. (original) The optical device of claim 1, wherein said diffraction grating 1
- has a grating line frequency greater than 900 grating lines per mm. 2
- (original) The optical device of claim 1, wherein said optical unit 1 3.
- comprises a walk-off crystal and a wave plate positioned such that said 2
- 3 polarization components of said selected optical signal in said outgoing direction
- are selectively transmitted through said wave plate.

- 1 4. (canceled).
- 5. (canceled).
- 6. (original) The optical device of claim 1, further comprising a controllable
- 2 switching array, said controllable switching array including pixels with
- 3 changeable optical property.
- 1 7. (original) The optical device of claim 6, wherein said pixels include
- 2 electrically controllable birefringent material.
- 1 8. (original) The optical device of claim 7, wherein said electrically
- 2 controllable birefringent material is one of liquid crystal and lithium niobate.

1 9). ((currently	amended)	$\Lambda n o$	ptical d	levice	comprising:
-----	------	------------	----------	---------------	----------	--------	-------------

SENT BY: WILSON & HAM;

- an input optical unit comprising an input to receive optical signals, 2 said input optical unit being configured to selectively rotate one of the polarization 3 components of each of said optical signals to a first polarization state; 4
- an output optical unit comprising an output to selectively transmit 5 said polarization components of a selected optical signal of said optical signals; 6
- a diffraction grating optically coupled to said input and output 7 optical units to diffract said polarization components of said optical signals to and 8 from said input and output optical units, said diffraction grating being a reflective 9 10 type grating;
- an active optical element optically coupled to said diffraction 11 grating, said active optical element being configurable to selectively convert said 12 polarization components of said selected optical signal from said first polarization 13 state to a second polarization state; and
- 14 an intermediate optical unit positioned between said diffracting 15 grating and said active optical element, said intermediate optical unit being 16 configured to laterally displace and rotate said polarization components of said 17 selected optical signal in an outgoing direction from said second polarization state 18 19 to said first polarization state such that said polarization components of said selected optical signal are in said first polarization state at said diffraction grating 20 in both said incoming and outgoing directions, said intermediate optical unit 21 comprising a Wollaston prism and a wave plate positioned such that said 22 polarization components of said selected optical signal in said outgoing direction 23
- (original) The optical device of claim 9, wherein said diffraction grating 10. 1
- has a grating line frequency greater than 900 grating lines per mm.

are selectively transmitted through said wave plate.

- (original) The optical device of claim 9, wherein said intermediate optical 1 11.
- unit comprises a walk-off crystal and a wave plate positioned such that said 2
- polarization components of said selected optical signal in said outgoing direction 3
- are selectively transmitted through said wave plate. 4

24

- 1 12. (canceled).
- 1 13. (original) The optical device of claim 9, wherein said intermediate optical
- 2 unit comprises a polarizing beamsplitter and a wave plate positioned such that said
- 3 polarization components of said selected optical signal in said outgoing direction
- 4 are selectively transmitted through said wave plate.
- 1 14. (original) The optical device of claim 9, wherein said active optical
- 2 element comprises a controllable switching array, said controllable switching
- 3 array including pixels with changeable optical property.
- 1 15. (original) The optical device of claim 14, wherein said pixels comprises
- 2 cleetrically controllable birefringent material.
- 1 16. (original) The optical device of claim 15, wherein said electrically
- 2 controllable birefringent material is one of liquid crystal and lithium niobate.

1	17. (currently amended) A method for transmitting a selected optical signal,					
2	said method comprising:					
3	receiving optical signals;					
4	selectively rotating polarization components of said optical signals					
5	to a first polarization state;					
6	diffracting said polarization components of said optical signals in					
7	said first polarization state to spatially separate said polarization components;					
8	selectively converting said polarization components of a selected					
9	optical signal of said optical signals from said first polarization state to a second					
10	polarization state;					
11	laterally displacing said polarization components of said selected					
12	optical signal, including transmitting said polarization components of said selected					
13	optical signal through-one-of a Wollaston prism and a waveplate a polarizing					
14	beamsplitter;					
15	rotating said polarization components of said selected optical signal					
16	from said second polarization state back to said first polarization state;					
17	diffracting said polarization components of said selected optical					
18	signal in said first polarization state; and					
19	outputting said polarization components of said selected optical					
20	signal.					
1	18. (original) The method of claim 17, wherein said converting includes					

1 19. (original) The method of claim 17, wherein said converting includes

reflecting said polarization components of said optical signals.

- 2 converting said polarization components of said selected optical signal from said
- 3 first polarization state to said second polarization state in response to an electrical
- 4 control signal.

2

- 1 20. (original) The method of claim 17, wherein said laterally displacing
- 2 includes transmitting said polarization components of said selected optical signal
- 3 through a device that only laterally displaces said polarization components in said
- 4 second polarization state.

Attorney Docket No. 10020590-1 Serial No. 10/680,647